

Startup

11. Special Tools Required

- Ammeter, Amprobe or Equal
- Ohm Meter
- Volt Meter
- Temperature Gage (450° F/232° C Maximum Needed)
- Hygrometer (A Measuring Device That Reads Relative Humidity)

12. Precautions Before Attempting Startup of the Dehumidifier

Perform the Pre-Start Inspection, Including but not necessarily limited to:

- A) Measure supply voltage and make sure it agrees with the unit nameplate.
- B) Check all electrical connections in the main control panel for tightness.
- C) Check to see that all fuses are installed, and are of correct value.
- D) Check unit supply air outlet, and supply blower inlets for obstructions.
- E) Check filters for cleanliness, clean or replace if dirty or damaged.
- F) Inspect desiccant rotor and seals for damage, or binding.
- G) Check inside unit for general cleanliness, close and secure access doors.

13. Typical Sequence of Operation

WARNING: To minimize exposure to electrical and mechanical hazards when servicing this unit, the unit Main Disconnect Switch should be placed in the OFF position.

- A) With the correct power supplied to the unit and the Main Disconnect Switch in the ON position.
- B) With the Continuous-Off-Auto selector switch in the OFF position, the DDC Controller is powered and the sensors are activated. The unit is in standby.
- C) Vent Mode: With the Continuous-Off-Auto mode selector switch in the Continuous position and with all safety circuits normal, the supply fan motor contactor energizes the supply fan.

DH Mode: With the Continuous-Off-Auto mode selector switch in the Auto position and with all safety circuits normal, the unit will remain in standby until a call for dehumidification occurs. With a call for dehumidification the supply fan motor contactor energizes the supply fan.

Intermittent DH: The space air humidity is controlled via the DDC Controller. The space air humidity is sensed by the (optional) shipped loose space humidistat. When the sensed humidity exceeds the humidistat set-point the DDC controller enables a call for dehumidification energizing the supply fan and reactivation circuit, including reactivation fan, DH rotor, and reactivation electric heater.

Continuous DH: With the Continuous Run jumper plug installed the DH will run continuously.

- D) Electric Reactivation: The Reactivation electric coil modulation is controlled via DDC controller as follows:

Desiccant reactivation inlet temperature is maintained at optimum temperature for maximum dehumidification performance irrespective of outdoor temperature or filter loading.

As moisture load decreases, reactivation outlet temperature rises, and DDC controller resets reactivation inlet temperature down as required to limit reactivation outlet temperature.

Fail-Safe Mode: In order to preserve limited performance, in the event of a sensor failure, the DDC controller will deliver electric coil modulation rate signal as follows:

With failed desiccant reactivation inlet sensor, Stage 1 is on and Stage 2 is disabled and stage 3 is modulated to 50%.

With failed reactivation outlet sensor, desiccant reactivation inlet is maintained at 260 degrees F.

With diminished reactivation airflow (i.e. dirty filters) desiccant reactivation inlet temperature is limited in order to prevent rotor overheat.

With overheat caused by an abnormal condition, a manual reset high temperature limit in desiccant reactivation inlet air stream cycles reactivation electric coil off.

Adequate reactivation energy is proven via reactivation outlet temperature. If the reactivation outlet temperature fails to achieve or falls below 95 degrees over a 15 minute period the "General Alarm" light on the unit will illuminate and "Low Reactivation Temp" will be indicated by the DDC user interface. Unit will continue to run.

- E) Unit or reactivation shutdown occurs via the following:

Desiccant rotor rotation is proven via magnetic proximity switch input to the DDC controller. If rotation is not detected within programmed time, unit shutdown occurs. If the unit is set for continuous supply operation the supply fan will continue to run. The "Rotation Fault" and "General Alarm" lights on the unit will illuminate and the DDC user interface will indicate an alarm.

A 3-Phase monitor is connected to the External Faults input. If input power phasing, voltage or balance is incorrect the "Other Faults" and "General Alarm" lights on the unit will illuminate. The DDC user interface will also indicate an alarm. Unit shutdown will occur.

Other customer or factory furnished devices may be installed to initiate unit shutdown via External Faults input.

Reactivation inlet temperature exceeding 350° results in a high limit fault and unit shutdown. If the unit is set for continuous supply operation the supply fan will continue to run. To reset the High Limit Stat, turn the Main Disconnect Switch OFF, press the manual reset button located on the High Limit Stat. Turn the Main Disconnect Switch ON. The "High Limit Tripped" and "General Alarm" lights on the unit will illuminate and the DDC user interface will indicate an alarm.

Additional temperature limits are programmed into the reactivation rate controller. If the reactivation inlet temperature sensed by the inlet RTD reaches 325°F or the reactivation outlet RTD senses a temperature greater than 200°F the reactivation process is de-energized. The "General Alarm" light on the unit will illuminate and the "RIT Limit Exceeded" or ROT Limit

ARID-Dry MS-5000/4000

Exceeded” will be indicated on the DDC user interface. Unit shutdown occurs. If the unit is set for continuous supply operation the supply fan will continue to run.

An additional safety is programmed into the reactivation rate controller that will de-energize the reactivation process if the reactivation inlet temperature exceeds 315°F and the reactivation energy modulation is at 0%. The “General Alarm” light on the unit will illuminate and the DDC user interface will indicate a “Possible React Airflow Restriction Alarm.” Unit shutdown occurs. If the unit is set for continuous supply operation the supply fan will continue to run.

Failure to sense supply airflow within 60 seconds of the run command or loss of supply air flow during operation results in a supply fan fault and unit shutdown. The “General Alarm” light on the unit will illuminate and the DDC user interface will indicate a Supply Fan Fault.

Failure to sense reactivation airflow within 60 seconds of the reactivation enable command or loss of reactivation air flow during operation results in a react fan fault and unit shutdown. If the unit is set for continuous supply operation the supply fan will continue to run. The “General Alarm” light on the unit will illuminate and the DDC user interface will indicate a React Fan Fault.

After corrective action is taken, the controller fault condition may be reset by cycling the “Vent-Off-DH” selector switch to the Off position, or cycling unit power.